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Hoell, James M. Jr., Burlock, Joseph, and Jarrett, Olin Jr. Velocity and thrust measurements in a quasi-steady magnetoplasmadynamic thruster. (AIAA J) 1969
Hoffman, John D. and Velkoff, Henry R. Vortex flow over helicopter rotor tips. (JA, EN) 739
Hoffman, Myron A. (AIAA J; see Decher, Reiner)
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Hottel, H. C., Sarofim, A. F., Dalzell, W. H., and Vasalos, I. A. Optical properties of coatings. Effect of pigment concentration. (AIAA J) 1895
Hougen, Merritt L. and McCune, James E. Magnetohydrodynamic instabilities in a weakly ionized, radiating plasma. (AIAA J) 1947
Howard, Millard L., Brooks, Eugene N. Jr., and Saffell, Bernard F. Jr. Missile aerodynamic predictions to 180°. (JSR) 488
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——Thermal-mechanical response of nearly opaque materials exposed to continuous radiation. (AIAA J) 1911
Howell, Darrel H. (AIAA J, TN; see Rodkiewicz, Czeslaw M.)
Howell, L. J. and Lin, Y. K. Response of flight vehicles to nonstationary atmospheric turbulence. (AIAA J) 2201
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——(AIAA J; see Tabakoff, W.)
Hutchinson, J. W., Tennyson, R. C. and Muggeridge, D. B. Effect of a local axisymmetric imperfection on the buckling behavior of a circular cylindrical shell under axial compression. (AIAA J) 48
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——(AIAA J; see Luzzi, T.)
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——An optimal, analytic solution to the linear-gravity, constant-thrust trajectory problem. (JSR, EN) 793
Jischke, Martin C. Asymptotic solution for viscous, absorbing, emitting shock layer. (AIAA J) 1920
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Kicher, Thomas P. and Chao, Tung-Lai Minimum weight design of stiffened fiber composite cylinders. (JA) 562
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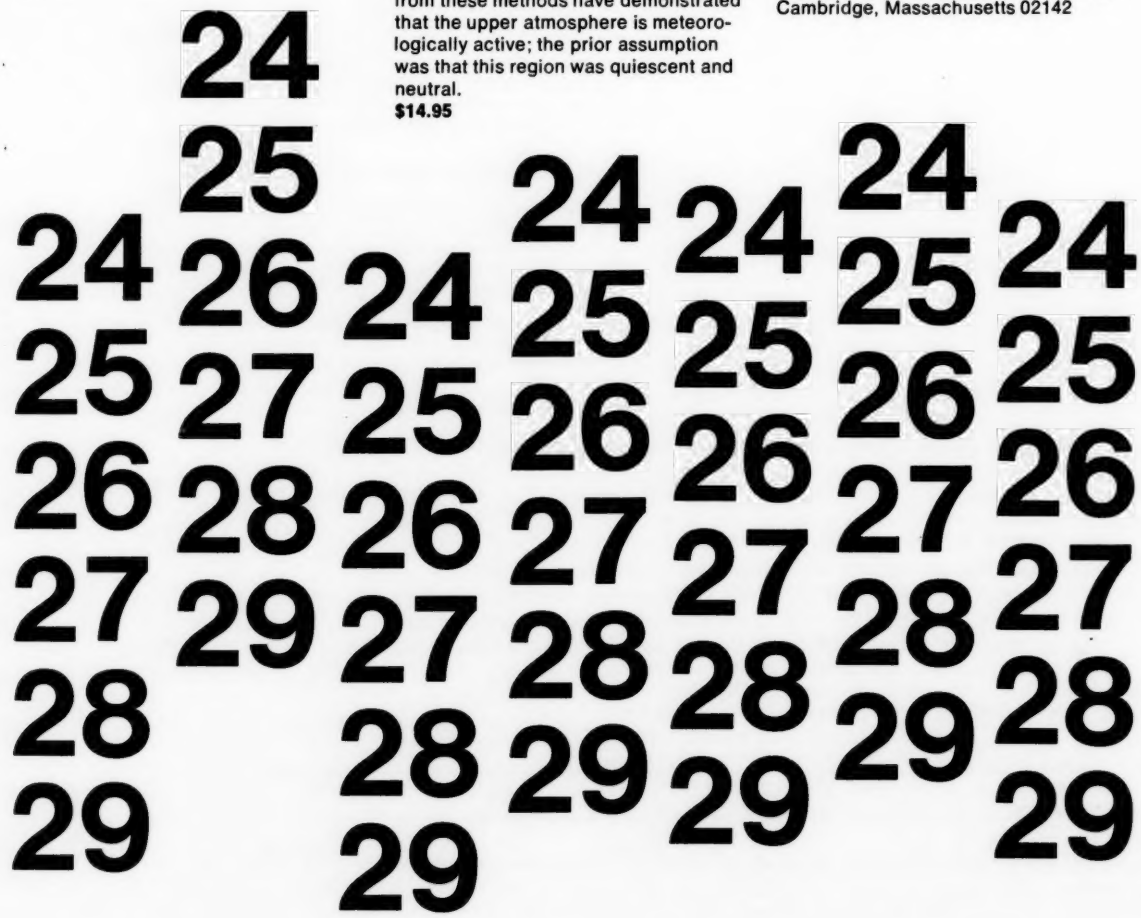
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